

Abstract

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Epigenetics: A New Bridge between Nutrition and Health.

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BACKGROUND: Nutrients can reverse or change epigenetic phenomena such as DNA methylation and histone modifications, thereby modifying the expression of critical genes associated with physiologic and pathologic processes, including embryonic development, aging, and carcinogenesis.

DISCUSSION: It appears that nutrients and bioactive food components can influence epigenetic phenomena either by directly inhibiting enzymes that catalyze DNA methylation or histone modifications, or by altering the availability of substrates necessary for those enzymatic reactions. In this regard, nutritional epigenetics has been viewed as an attractive tool to prevent pediatric developmental diseases and cancer as well as to delay aging-associated processes. In recent years, epigenetics has become an emerging issue in a broad range of diseases such as type 2 diabetes mellitus, obesity, inflammation, and neurocognitive disorders.

CONCLUSION: Although the possibility of developing a treatment or discovering preventative measures of these diseases is exciting, current knowledge in nutritional epigenetics is limited, and further studies are needed to expand the available resources and better understand the use of nutrients or bioactive food components for maintaining our health and preventing diseases through modifiable epigenetic mechanisms.

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